Claims

What is claimed is:

1. A method of processing an information signal containing content presented in accordance with at least one modality, the method comprising the steps of:

obtaining the information signal;

performing content detection on the information signal to detect whether the information signal includes particular content presented in accordance with the at least one modality; and

generating a control signal, when the particular content is detected, for use in controlling at least one of a rendering property of the particular content and implementation of a specific action relating to the particular content.

2. The method of claim 1, wherein the at least one modality in which the content in the information signal is presented is audio-based.

3. The method of claim 1, wherein the at least one modality in which the content in the information signal is presented is video-based.

4. The method of claim 1, wherein the at least one modality in which the content in the information signal is presented is audio-based and video-based.

5. The method of claim 1, wherein the controlled rendering property is a presentation speed of the particular content.

6. The method of claim 5, wherein the presentation speed is controlled in accordance with detection of specific content classes in the information signal.

7. The method of claim 6, wherein a specific content class comprises one of numbers, names and addresses.

8. The method of claim 5, wherein the presentation speed of the particular content is at least one of slowed down and sped up.

9. The method of claim 5, wherein the presentation speed of the particular content is slowed down from an initial sped-up presentation speed.

10. The method of claim 1, further comprising the step of providing a user interface for a user to control at least one of the rendering property of the particular content and the implementation of the specific action relating to the particular content.

11. The method of claim 1, further comprising the step of marking at least a portion of the information signal in response to a user input such that the content detection step is performed on the marked portion of the information signal to detect whether the marked portion of the information signal includes the particular content.

12. The method of claim 1, further comprising the step of storing the particular content when detected in the information signal.

13. A method of processing a speech signal received in accordance with at least one communication device, the method comprising the steps of:

obtaining the speech signal;

performing content detection on the speech signal to detect whether the speech signal includes particular content; and

generating a control signal, when the particular content is detected, for use in controlling at least one of a rendering property of the particular content and implementation of a specific action relating to the particular content.

14. The method of claim 13, wherein the controlled rendering property is a speech playback speed of the particular content.

15. The method of claim 14, wherein the speech playback speed is controlled in accordance with detection of specific content classes in the speech signal.

16. The method of claim 15, wherein a specific content class comprises one of numbers, names and addresses.

17. The method of claim 14, wherein the speech playback speed of the particular content is at least one of slowed down and sped up.

18. The method of claim 14, wherein the speech playback speed of the particular content is slowed down from an initial sped-up playback speed.

19. The method of claim 13, further comprising the step of providing a user interface for a user to control at least one of the rendering property of the particular content and the implementation of the specific action relating to the particular content.

20. The method of claim 13, further comprising the step of marking at least a portion of the speech signal in response to a user input such that the content detection step is performed on the marked portion of the speech signal to detect whether the marked portion of the speech signal includes the particular content.

21. The method of claim 13, further comprising the step of storing the particular content when detected in the speech signal.

22. The method of claim 13, wherein the communication device is a cellular phone.

23. The method of claim 13, wherein the speech signal is associated with a real-time conversation.

24. The method of claim 13, wherein the speech signal is associated with a previously recorded voice mail message.

25. The method of claim 13, wherein the particular content is a phone number and the specific action is automatically dialing the phone number.

26. The method of claim 13, wherein the particular content is an address and the specific action is storing the address.

27. A method of processing a real-time speech signal received in accordance with a communication device substantially contemporaneous with a communication session, the method comprising the steps of:

obtaining the real-time speech signal;

marking at least a portion of the real-time speech signal that is at least of potential interest to a user of the communication device; and

storing the marked portion for at least one of subsequent rendering and use.

28. A method of processing an information signal containing content presented in accordance with at least one modality, the method comprising the steps of:

obtaining the information signal;

marking at least a portion of the information signal in response to a user input;

performing content detection on the at least a portion of the information signal to detect whether the marked portion of the information signal includes desired content presented in accordance with the at least one modality; and

at least one of storing and utilizing the desired content in a subsequent application when detected in the information signal.

29. A method of processing a video signal, the method comprising the steps of:

obtaining the video signal;

performing content detection on the video signal to detect whether the video signal includes particular content; and

generating a control signal, when the particular content is detected, for use in controlling at least one of a rendering property of the particular content and implementation of a specific action relating to the particular content.

30. A method of processing an information signal containing content presented in accordance with at least two modalities, the method comprising the steps of:

obtaining the information signal;

separating the information signal into a first signal including information in one of the two modalities and a second signal including information in the other of the two modalities;

performing content detection on the first signal to detect whether the first signal includes particular content presented in accordance with the one modality;

performing content detection on the second signal to detect whether the second signal includes particular content presented in accordance with the other modality;

combining results associated with the content detection steps; and

generating a control signal, when at least a portion of the particular content is detected in accordance with at least one of the content detection steps, for use in controlling at least one of a rendering property of the particular content and implementation of a specific action relating to the particular content.

5   31. The method of claim 30, wherein the two modalities are video and audio.

32. The method of claim 31, wherein the content detection step performed on the video signal is optical character recognition and the content detection step performed on the audio signal is speech recognition.

33. A method of processing an information signal containing text-based content,
10   the method comprising the steps of:

obtaining the information signal;

performing content detection on the information signal to detect whether the information signal includes particular text-based content; and

highlighting the particular text-based content, when the particular text-based
15   content is detected, and enabling implementation of a specific action or service relating to the particular content.

34. The method of claim 33, wherein the highlighting step further comprises rendering the particular text-based content in one font while other text-based content is rendered in a different font.

20   35. A method of processing an information signal containing markup language-based content, the method comprising the steps of:

obtaining the information signal;

performing content detection on the information signal to detect whether the information signal includes particular markup language-based content; and

highlighting the particular markup language-based content, when the particular markup language-based content is detected, and enabling implementation of a specific action or service relating to the particular content.

36. The method of claim 35, wherein the highlighted mark-up language-based content points through a uniform resource indicator to a particular service that can be activated by the user.

37. The method of claim 35, wherein the highlighted mark-up language-based content points through a uniform resource indicator to a particular service that can be automatically loaded and executed in a browser.

38. The method of claim 35, wherein the highlighted mark-up language-based content results into a link of another color that can be right clicked by a user to one of activate and display the service options.

39. The method of claim 35, wherein content detection is performed in accordance with at least one of an application developer, a service provider, an intermediary and an end-user.

40. The method of claim 35, wherein the particular markup language-based content is associated to a menu.

41. The method of claim 35, wherein the particular markup language-based content is rendered in accordance with a browser.

42. The method of claim 41, wherein the browser is a multimodal browser.

43. The method of claim 35, wherein the markup language is XML.

44. A method of processing an information signal containing text-based content, the method comprising the steps of:

5 obtaining the information signal;

performing pattern recognition on the information signal;

calculating a measure based on the pattern recognition; and

highlighting particular text-based content contained in the information signal based on the calculated measure.

10 45. Apparatus for processing an information signal containing content presented in accordance with at least one modality, the apparatus comprising:

at least one processor operative to: (i) obtain the information signal; (ii) perform content detection on the information signal to detect whether the information signal includes particular content presented in accordance with the at least one modality; and

15 (iii) generate a control signal, when the particular content is detected, for use in controlling at least one of a rendering property of the particular content and implementation of a specific action relating to the particular content.

46. Apparatus for processing a speech signal received in accordance with at least one communication device, the apparatus comprising:

20 at least one processor operative to: (i) obtain the speech signal; (ii) perform content detection on the speech signal to detect whether the speech signal includes particular content; and (iii) generate a control signal, when the particular content is detected, for use in controlling at least one of a rendering property of the particular content and implementation of a specific action relating to the particular content.

47. Apparatus for processing a real-time speech signal received in accordance with a communication device substantially contemporaneous with a communication session, the apparatus comprising:

at least one processor operative to: (i) obtain the real-time speech signal; (ii) mark at least a portion of the real-time speech signal that is at least of potential interest to a user of the communication device; and (iii) store the marked portion for at least one of subsequent rendering and use.

48. Apparatus for processing an information signal containing content presented in accordance with at least one modality, the apparatus comprising:

at least one processor operative to: (i) obtain the information signal; (ii) mark at least a portion of the information signal in response to a user input; (iii) perform content detection on the at least a portion of the information signal to detect whether the marked portion of the information signal includes desired content presented in accordance with the at least one modality; and (iv) at least one of store and utilize the desired content in a subsequent application when detected in the information signal.

49. Apparatus for processing a video signal, the apparatus comprising:

at least one processor operative to: (i) obtain the video signal; (ii) perform content detection on the video signal to detect whether the video signal includes particular content; and (iii) generate a control signal, when the particular content is detected, for use in controlling at least one of a rendering property of the particular content and implementation of a specific action relating to the particular content.

50. Apparatus for processing an information signal containing content presented in accordance with at least two modalities, the apparatus comprising:

at least one processor operative to: (i) obtain the information signal; (ii) separate the information signal into a first signal including information in one of the two modalities and a second signal including information in the other of the two modalities; (iii) perform content detection on the first signal to detect whether the first signal includes particular content presented in accordance with the one modality; (iv) perform content detection on the second signal to detect whether the second signal includes particular content presented in accordance with the other modality; (v) combine results associated with the content detection steps; and (vi) generate a control signal, when at least a portion of the particular content is detected in accordance with at least one of the content detection steps, for use in controlling at least one of a rendering property of the particular content and implementation of a specific action relating to the particular content.

51. Apparatus for processing an information signal containing text-based content, the apparatus comprising:

at least one processor operative to: (i) obtain the information signal; (ii) perform content detection on the information signal to detect whether the information signal includes particular text-based content; and (iii) highlight the particular text-based content, when the particular text-based content is detected, and enabling implementation of a specific action or service relating to the particular content.

52. Apparatus for processing an information signal containing markup language-based content, the apparatus comprising:

at least one processor operative to: (i) obtain the information signal; (ii) perform content detection on the information signal to detect whether the information signal includes particular markup language-based content; and (iii) highlight the particular markup language-based content, when the particular markup language-based content is detected, and enabling implementation of a specific action or service relating to the particular content.

53. Apparatus for processing an information signal containing text-based content, the apparatus comprising:

at least one processor operative to: (i) obtain the information signal; (ii) perform pattern recognition on the information signal; (iii) calculate a measure based on the pattern recognition; and (iv) highlight particular text-based content contained in the information signal based on the calculated measure.